

SYSTEM AND METHOD FOR UPDATING CONTACT RECORDS

1 RELATED PATENT APPLICATION

2 This application is a continuation-in-part of U.S.
3 Patent Application Serial No. 10/456,575 filed on May 6,
4 2003 and entitled "System and Method for Common Account
5 Based Routing of Contact Records," which is a
6 continuation-in-part of U.S. Patent Application Serial
7 No. 10/095,513, filed on March 12, 2002 and entitled
8 "*System and Method for Preemptive Goals Based Routing of*
9 *Contact Records*," which is a continuation-in-part of U.S.
10 Patent Application Serial No. 09/901,749 filed on July 9,
11 2001 and entitled "*Method and System for Distributing*
12 *Outbound Telephone Calls*."

13

14 TECHNICAL FIELD OF THE INVENTION

15 This invention relates to the field of telephony,
16 computer networks, and customer relationship management,
17 and more particularly to a system and method for common
18 account based routing of contact records.

1 BACKGROUND OF THE INVENTION

2 Customer contact centers represent the front line
3 for customer service, marketing operations, and debt
4 collection for many businesses. Typical centers receive
5 or make hundreds of telephone calls, emails, and Internet
6 chat requests per day with the aid of automated telephony
7 and Internet equipment. For instance, predictive dialers
8 such as the MOSAIX Predictive Dialing System ("PDS")
9 manufactured by Avaya Incorporated automatically dial
10 outbound telephone calls to contact individuals and then
11 transfer the contacted individuals to agents so the agent
12 can talk with the individual.

13 Devices such as dialing devices, email servers, chat
14 servers, VOIP servers, telephony servers, and web servers
15 allow agents to save time in contacting customers and
16 receiving requests from customers. Dialing devices such
17 as predictive dialers save time for the agent placing the
18 call because the dialing device and not the agent dials
19 the telephone number and agents' time is not wasted with
20 unanswered calls or answering machines. Predictive
21 dialers also spread the outbound telephone calls evenly
22 among all the agents working from the dialing device so
23 that the agents share the workload equally and no agents
24 sit idle while others have too many telephone calls to
25 place. Predictive dialers are also a significant
26 component of customer relationship management (CRM)
27 systems which extend the efficiency gained from
28 predictive dialers to other contact channels such as
29 email and live Internet chat.

30 Many businesses are increasing their marketing
31 efforts, customer service programs, and bad debt

1 collection efforts by having multiple customer contact
2 centers or call centers or multiple devices located at a
3 single site to serve more customers. Typically, when
4 businesses have multiple sites, the centers are located
5 in different geographic locations which makes
6 coordination of customer contact strategies difficult.

7 Thus businesses generally manage call centers
8 individually, with separate staffing, calling strategies,
9 goals, and functions. Generally, a contact list is
10 divided into as many parts as there are call centers or
11 dialers with each call center receiving its own section
12 of the calling list. Although this segmentation
13 distributes work, coordination of strategy for outbound
14 calling is difficult since each call center is
15 responsible for its own section of the calling list and
16 has no knowledge of the other call centers' progression
17 with their own calling lists. For instance, if a call
18 center goes down and cannot make outbound telephone
19 calls, the other call centers cannot typically address
20 the downed call center's calling list goals and
21 priorities because the other call centers do not have
22 access to the calling list including the telephone
23 numbers actually called.

24 A similar problem occurs with a single call center
25 having multiple CRM systems having multiple devices.
26 Work load segmentation typically occurs at a host level,
27 where each device is assigned a portion of the work load.
28 A host downloads the segmented contact list to the
29 individual dialing devices. If one device fails, the
30 other devices do not know the status of the contacts in
31 the failed device's segment.

1 Difficulties also arise in the routing of outbound
2 calls, call records, or contact records to the agents in
3 a single calling center or multiple calling centers.
4 Typically when routing calls, a call center employs
5 categorization and prioritization routing or load
6 leveling routing. With categorization and prioritization
7 routing, the calls are categorized and prioritized before
8 being sent to the call centers. All of the available
9 call records are organized into distinct groups or pools
10 and each pool of call records is prioritized according to
11 a particular prioritizing scheme. A typical scheme often
12 used at contact centers is to prioritize the inbound
13 calls with the highest priority, live Internet chats
14 second, outbound calls third, and email or other requests
15 last. The agents are segregated into distinct teams and
16 each team receives call records from a particular pool
17 based on the prioritization of the call records.

18 Load leveling routing of call records allows
19 multiple agent teams to work on the same group or pools
20 of records whether the agents are located in the same
21 call center or if the agents are located across multiple
22 call centers. Load leveling routing eliminates the
23 restriction of categorization and prioritization that
24 requires distinct groups of records for agents not
25 working from the same dialing device. This allows for
26 the movement of call records between the agents and call
27 centers.

28 However, none of the above call record routing
29 techniques adjusts the agent and pool workload based on
30 the performance or the performance goals of the call
31 record pools. Generally, if a call record pool is not

1 maintaining a desired performance, manual intervention by
2 a system administrator is required to adjust for the
3 under performing call record pool. In order to address
4 the under performing call record pool, agents must move
5 from one team to another in order to have the ability to
6 access call records from the under performing pool and
7 thereby improve the call record pool performance. But
8 this is a slow process that typically results in agent
9 and call center downtime and often cannot be made quickly
10 enough to respond to current call record pool
11 performance.

12 In addition, such manual intervention decisions to
13 correct under performing call records pools typically
14 require guess work and making decisions without
15 considering all the available options and the effect on
16 the other call record pools. The system administrator
17 must guess as to the effects on the other call record
18 pools when agents are moved from pools maintaining or
19 achieving performance requirements to under performing
20 pools. If agent moves are made incorrectly, then
21 additional pools may start under performing due to the
22 agents that were moved to the under performing pool.
23 Therefore the performance of the call record pools
24 requires constant supervision to ensure that by the end
25 of the calling day the performance requirements for the
26 highest priority pools are satisfied.

27 Another difficulty with attempts to coordinate
28 calling campaigns across multiple contact device dialers
29 and/or multiple contact calling centers is that a single
30 individual sometimes has multiple accounts that result in
31 multiple contact attempts to the individual for each

1 account. For instance, an individual may have call
2 records for a delinquent account, a marketing account for
3 new sales and a service quality inquiry. As another
4 example, a calling center may have contracts with
5 multiple businesses to contact each business' delinquent
6 accounts and the delinquent accounts of two or more
7 businesses may share common individuals who are
8 delinquent. In such instances, multiple call centers may
9 simultaneously contact or attempt to contact the same
10 individual for the different accounts. An individual
11 targeted by multiple calling centers is more likely to
12 feel harassed and less likely to cooperate or even
13 respond to the call center inquiries. Multiple attempts
14 to contact the same individual by different call centers
15 result in greater outbound call volume and less effective
16 use of outbound calling capacity.

17 Another difficulty with attempts to coordinate
18 calling campaigns across multiple contact devices is that
19 contact information is often inaccurate or outdated. For
20 instance, with debt collection campaigns debtors
21 generally do not update their contact information and,
22 often, delinquent account holders intentionally avoid
23 contact. Thus, debt collection contact attempts are
24 often made to wrong numbers that are no longer in service
25 or that are no longer associated with the party
26 responsible for the debt. When the contact information
27 associated with a responsible party is outdated or
28 invalid, contact centers use a number of available
29 resources to "skip trace" the responsible party and
30 obtain valid contact information, such as directory
31 assistance or third party skip tracing services like

1 FASTDATA from FDR. However, each look-up has an
2 associated charge so that call centers generally attempt
3 to control the cost and number of look-ups that are
4 performed. Skip trace look-up costs are typically
5 controlled by consolidating the bad numbers reached
6 throughout a calling day or campaign and querying various
7 skip trace resources manually or with automated batches
8 to obtain numbers for subsequent attempts. In multi-
9 dialer operations, consolidated skip trace look-ups help
10 prevent multiple skip traces of the same responsible
11 party, but tend to reduce the effectiveness of a campaign
12 by restricting the responsiveness of a campaign when bad
13 numbers are identified since subsequent attempts to
14 contact the responsible party after the skip-trace lookup
15 will generally occur in another campaign after the
16 consolidated updates are performed.

1 SUMMARY OF THE INVENTION

2 Therefore, a need has arisen for a system and method
3 that distributes contact records based on the performance
4 of the pools of contact records.

5 A further need has arisen for a system and method
6 that automatically monitors the performance of the pools
7 and automatically adjusts the distribution of contact
8 records based on the performance of the pools.

9 A further need exists for a system and method which
10 coordinates contact attempts for related but separate
11 contact record accounts.

12 A further need exists for a system and method which
13 determines that contact information is outdated and
14 coordinates look-up of current contact information.

15 In accordance with the present invention, a system
16 and method for distributing contact records utilizing
17 goals based routing is provided which substantially
18 eliminates or reduces disadvantages and problems
19 associated with previously developed systems and methods
20 for distributing contact records. A goal module monitors
21 the performance of one or more pools of contact records
22 and automatically modifies the distribution of the
23 contact records from the pools based on the performance
24 of each pool.

25 In accordance with one aspect of the present
26 invention, distribution of contact records utilizing
27 goals based routing is accomplished by a distribution
28 module interfaced with a plurality of devices. The
29 distribution module includes a plurality of pools and a
30 plurality of queues. The distribution module places
31 contact records into the pools, transfers less than all

1 of the contact records to the queues from the pools, and
2 transfers the queues to the devices. Associated with the
3 distribution module is a goal module. The goal module
4 monitors the performance of each pool and modifies which
5 queues the pools transfer contact records to based upon
6 the performance of the pools.

7 In one embodiment, the goal module defines one or
8 more levels of effort for each queue. The levels of
9 effort determine the percentage of contact records that
10 transfers from a pool to a particular queue. The goal
11 module also determines a goal for each pool that reflects
12 the performance of the pool and prioritizes the pools
13 relative to each other. As the agents access the contact
14 records from the queues, the goal module monitors the
15 performance of the pools by calculating a goal status for
16 each pool. The goal module uses the goal status to
17 determine a goal state for each pool. The goal state
18 indicates whether a pool is satisfying the goal. Based
19 upon the goal states for each pool, the goal module
20 modifies which queues the pools transfer contact records
21 to by transferring the levels of effort between the pools
22 and the queues.

23 In an alternate embodiment, the goal states and one
24 or more goal strategies allow for the optimization of the
25 transfer of contact records from the pools to the queues
26 and determine how the goal module modifies which queues
27 the pools transfer contact records to. The goal
28 strategies control how levels of effort between the pools
29 and queues are transferred when a pool is not satisfying
30 the goal. A goal strategy may require the transfer of
31 levels of effort to pools not satisfying their goals or

1 the transfer of levels of effort away from pools not
2 satisfying the goal. The goal module transfers levels of
3 effort in accordance with the goal strategies so that
4 pools having the highest priority maintain or achieve the
5 goals throughout the day.

6 In another alternative embodiment, related call
7 records are identified and marked with a relationship tag
8 to coordinate actions for multiple related accounts
9 before a contact attempt is made. This relationship tag
10 may be applied in real-time before a call record is
11 prepared for distribution or when a list of callable
12 records is loaded into the system. A comparison engine
13 analyzes the call records database of one or more call
14 distribution modules to identify and tag related call
15 record accounts, such as call record accounts that are
16 related to a common individual. A common account tag
17 detector associated with each contact device detects an
18 individual relation tag associated with all similarly
19 tagged call records and, before a contact attempt to the
20 individual is made, communicates the relationship tag and
21 related account information to the call distribution
22 module. A common account controller of the call
23 distribution module places a hold on other accounts
24 related to the individual by placing a hold on call
25 records having the relationship tag to prevent the
26 placement of multiple calls to the individual once a call
27 has been initiated. The common account controller routes
28 the related account information (through the feed to the
29 dialing device) to the operator handling the successful
30 contact with the individual to allow simultaneous

1 resolution of the related account call records through
2 the single successful contact.

3 In another alternative embodiment, contact results
4 of contact records received by the distribution module
5 from contact devices, such as dialers, are analyzed by a
6 contact update engine to determine whether to perform
7 real time skip traces for records in which one or more
8 contact attempts were not successful. The update engine
9 analyzes a contact record's results with update factors,
10 such as rules or modeling variables, to determine if the
11 contact information, such as a telephone number, is
12 outdated. If a contact records are inaccurate and
13 business rules select the records for skip-trace lookup,
14 they are forwarded to an update resource interface for
15 update requests from one or more update resources, such
16 as directory assistance or third party location services.
17 The updated contact information is validated with an
18 update validation engine and provided to a contact record
19 database for real time distribution to contact devices to
20 attempt contacts with the updated contact information.

21 The present invention provides a number of important
22 technical advantages. One important technical advantage
23 is the distribution of contact records based on the
24 performance of the pools. The ability to distribute
25 contact records based on the performance of the pools of
26 contact records allows a call center to operate more
27 efficiently because the call center recognizes when a
28 pool is not sufficiently performing and redistributes the
29 contact record workload to allow for more efficient
30 operation thereby allowing higher priority pools to
31 satisfy performance requirements.

1 Another important technical advantage of the present
2 invention is the distribution of contact records based on
3 the performance of the pools without manual intervention.
4 The goal module monitors the performance of each pool and
5 determines whether a pool is ahead, at, or behind the
6 goal. When a pool is not satisfying a goal, the goal
7 module automatically takes action to modify how the pools
8 transfer contact records to so that the highest priority
9 pools achieve or maintain the goals. Therefore, no
10 manual intervention is required and pools are not
11 adversely affected by the changes. In addition, because
12 no manual intervention is required, there is reduced
13 agent or device downtime when the goal module distributes
14 the contact records based upon the performance of the
15 pools.

16 Another important technical advantage of the present
17 invention is the ability to quickly respond to current
18 pool performance levels. Because the goal module
19 constantly monitors the performance of the pools, the
20 goal module may instantly react to any change in the
21 performance of the pools throughout the day. And because
22 the goal module monitors the performance of all the pools
23 and has the goal states for every pool, when the goal
24 module modifies the distribution of contact records, the
25 goal module takes into account the effects of the
26 modification on the goals for all of the pools so that
27 the highest priority pools achieve or maintain the goals.
28 Therefore, the guess work in distributing contact records
29 based on the performance of the pools is reduced and
30 there are no unexpected results at the end of the day.

1 Another important technical advantage of the present
2 invention is that multiple related call record accounts
3 are handled through a single successful contact attempt.
4 The related account call records are identified and
5 tagged in a predetermined field or database column so
6 that contact devices are able to record a successful
7 contact attempt to all call records. The call
8 distribution device common account controller leverages
9 the successful contact to handle multiple call record
10 accounts related to the same individual without undue
11 delay in transferring the related account information to
12 the contact operator. This reduces outbound call volume
13 by eliminating multiple calls to the same individual and
14 more effectively uses outbound calling resources to
15 improve the distribution of resources across related and
16 unrelated accounts. Further, by handling multiple call
17 record accounts in a single call to an individual, an
18 operator has greater leverage in resolving business
19 issues with the individual. For instance, an operator
20 generally has greater bargaining power when dealing with
21 an individual over multiple delinquent accounts than a
22 single delinquent account.

23 Another example of a technical advantage is that a
24 skip trace update process automatically integrates
25 contact information updates with a distribution module to
26 allow real time updates to contact information in support
27 of a contact campaign. Real time updates allow reactions
28 to no contact results as a campaign progresses rather
29 than awaiting intermediate batch processes of no contact
30 results. Campaign effectiveness is further enhanced with
31 selection of contact records for updates based on

1 predetermined criteria, such as rules that define
2 outdated contact information or models that compare
3 contact information update cost with expected results,
4 such as predicted collections from updated contact
5 records. Coordinating updates through the distribution
6 module reduces expenses from repetitive updates and
7 allows selection of update resources to reduce costs and
8 enhance update accuracy.

9

10 BRIEF DESCRIPTION OF THE DRAWINGS

11 For a more complete understanding of the present
12 invention and the advantages thereof, reference is now
13 made to the following description taken in conjunction
14 with the accompanying drawings in which like reference
15 numbers indicate like features, and wherein:

16 FIGURE 1 depicts a block diagram of plural dialing
17 devices interfaced with a distribution module;

18 FIGURE 2 illustrates a block diagram of another
19 embodiment of the present invention employing two
20 distribution modules having common account controllers;

21 FIGURE 3 depicts a flow diagram of a method for
22 distribution outbound telephone calls;

23 FIGURES 4a and 4b illustrate a flow diagram for the
24 population of the pools and queues with call records;

25 FIGURE 5 depicts a flow diagram of a method for
26 goals based routing of contact records employing a meet-
27 goals goal strategy;

28 FIGURE 6 illustrates a flow diagram of a method for
29 goals based routing of contact records employing an
30 exceed-goals goal strategy;

1 FIGURE 7 depicts a block diagram of a distribution
2 module adapted to automatically perform real time contact
3 information updates; and

4 Figure 8 depicts a flow diagram of a process for
5 automated, real time contact information updates.

1 DETAILED DESCRIPTION OF THE INVENTION

2 Preferred embodiments of the present invention are
3 illustrated in the figures, like numeral being used to
4 refer like and corresponding parts of the various
5 drawings.

6 Under previous systems and methods for routing
7 contact records, the redistribution of contact records
8 among the devices and agents based upon the performance
9 of the of the different pools of contact records required
10 manual intervention often involving guesswork as to the
11 effects of performance based changes, the shutting down
12 of the devices, starting a new job on the device, or
13 moving agents between the devices. The goal module of
14 the present invention allows for the routing of contact
15 records across one or more than one device based on the
16 performance of the individual pools of contact records
17 quickly and without manual intervention. The goals based
18 routing of contact records allows for dynamically
19 modifying the distribution of contact records based on
20 the performance of the pools of contact records
21 throughout the day without manual intervention, down
22 time, and guesswork.

23 The present invention allows for the routing and
24 distribution of contact records among a plurality of
25 devices and agents based upon the performance of the
26 different pools of contact records. Contact records
27 include such customer contacts as outbound telephone
28 calls, inbound telephone calls, call records, emails,
29 Internet chat requests, online chat requests, and any
30 other appropriate form of customer contact. Devices
31 include such call center or contact center devices as

1 dialing devices including predictive dialers, email
2 servers, Internet chat servers, VOIP servers, telephony
3 servers, web servers, and any other appropriate call
4 center or contact center devices. In the figures below,
5 reference is made to call records and dialing devices but
6 the present invention equally applies to the other types
7 of contact records and devices listed above.

8 FIGURE 1 depicts a block diagram for an outbound
9 distribution system 100 for distributing outbound
10 telephone calls employing goals based routing. A
11 distribution module 102 interfaces with a first call
12 center 104a and a second call center 104n. System 100
13 allows call centers 104a and 104n to operate as a single
14 group of resources rather than two decentralized units,
15 with distribution module 102 controlling the strategy,
16 workload, and calling efforts for call centers 104 from a
17 single, central location. In alternative embodiments,
18 distribution module 102 interfaces with multiple dialing
19 devices at one or more call centers, or one dialing
20 device located in one call center.

21 Call centers 104 are geographically distributed,
22 each having one or more dialing devices that place
23 telephone calls using information in the call records.
24 Distribution module 102 operates on a SOLARIS, Linux, or
25 an any other appropriate operating system server and
26 communicates with call centers 104 via standardized
27 communications links such as Ethernet, the Internet with
28 protocols such as FTP, CORBA, API, and sockets over
29 TCP/IP, asynchronous transfer mode ("ATM"), or any other
30 appropriate communication link.

1 Call centers 104 each have one or more dialing
2 devices 108. Dialing devices 108 are predictive dialers
3 such as the MOSAIX PDS manufactured by Avaya Incorporated
4 or other appropriate predictive dialers. In the
5 embodiment shown in FIGURE 1, interfaced to dialing
6 device 108a in call center 104a are three agents 110a,
7 110b, and 110c with dialing device 108n of call center
8 104n also having three agents 110d, 110e, and 110f
9 interfaced to it. Agents 110 are workstations where
10 operators or agents speak to the individuals, chat with
11 individuals online, complete emails to, or otherwise
12 contact individuals who are contacted by dialing devices
13 108.

14 Dialing device 108 dials telephone numbers extracted
15 from the call records. If an individual answers the
16 telephone, dialing device 108 transfers the telephone
17 call to one of agents 110 so that the agent can speak
18 with the individual. Dialing devices 108 therefore
19 improve telephone calling efficiency by dialing the
20 telephone number and transferring the call to an agent
21 only if an individual answers the telephone.

22 System 100 functions by first having distribution
23 module 102 acquire the call records that dialing devices
24 108 will call. There are several different ways that
25 distribution module 102 acquires the call records.

26 For instance, host 112, which is associated with
27 dialing devices 108, stores raw call records. The raw
28 call records contain information including telephone
29 number, account number, individual name and address, and
30 any other appropriate personal information. For example,
31 a raw call record for Joe Smith includes Joe Smith's

1 telephone number, mailing address, account status,
2 account number, account passwords, gender, marital
3 status, number of children, employment status, and yearly
4 income.

5 Host 112 transfers the raw call records for that day
6 along path 114a to call center 104a and dialing device
7 108a and along path 114b to call center 104n and dialing
8 device 108n. Distribution module 102 contacts dialing
9 device 108a within call center 104a via path 116a and
10 dialing device 108n within call center 104n via path
11 116b. Distribution module 102 downloads from dialing
12 devices 108 to call record database 118 the call records.
13 The call records may contain some but not all of the
14 information from the raw call records. Downloading less
15 than all of the information from the raw call records
16 saves bandwidth and allows for efficient operation of
17 distribution module 102 because it handles smaller
18 amounts of data. For instance, distribution module 102
19 downloads as the call record an individual's name,
20 telephone number, and account number. So the call record
21 for Joe Smith contains Joe Smith's name, his telephone
22 number, and account number.

23 In an alternative embodiment, host 112 stores the
24 raw call records. Instead of transferring the raw call
25 records to dialing devices 108, distribution module 102
26 downloads the call records from host 112 to call record
27 database 118 via path 120.

28 Alternatively, dialing devices 108 store the raw
29 call records. Therefore, distribution module 102
30 contacts call center 104a and dialing device 108a via
31 path 116a and call center 104n and dialing device 108n

1 via path 116b to download the call records to call record
2 database 118.

3 Scheduling module 122 operates to develop and
4 provide optimal calling strategies for the call records
5 including resource optimization, automated statistical
6 modeling and flexible strategy management. For instance,
7 one such scheduling module 122 is described in U.S.
8 Patent No. 5,802,161, entitled "*Method and System for*
9 *Optimized Scheduling*" issued September 1, 1998, and is
10 hereby incorporated by reference.

11 The integration of scheduling module 122 is not
12 required for the operation of distribution module 102 but
13 it affects how distribution module 102 downloads the call
14 records and what information is contained in the call
15 records. For instance, host 112 transfers the raw call
16 records to call center 104a and dialing device 108a via
17 path 114a and call center 104n and dialing device 108n
18 via path 114b. Scheduling module 122 downloads from
19 dialing device 108a in call center 104a via path 124a and
20 from dialing device 108n in call center 104n via path
21 124b the raw call records. Scheduling module 122
22 develops call schedules for the raw call records.
23 Distribution module 102 downloads the call records
24 including the call schedule from scheduling module 122
25 via path 124c and stores the call records in call record
26 database 118.

27 Alternative embodiments also employ scheduling
28 module 122 in the delivery of call records to
29 distribution module 102. Scheduling module 122 downloads
30 the raw call records from host 112 via path 126. As
31 before, scheduling module 122 adds call schedules to the

1 raw call records before distribution module 102 downloads
2 the call records from scheduling module 122 via path 124c
3 to call record database 118.

4 Once distribution module 102 stores the call records
5 in call record database 118, distribution module 102
6 organizes and transfers the call records from call record
7 database 118 to pools 128, which are interfaced with
8 distribution module 102. The pools are sets of callable
9 call records specified by distribution module 102. Each
10 pool 128 represents a specific and ordered group of call
11 records. In the embodiment shown in FIGURE 1, there are
12 three pools 128a, 128b, and 128c. In alternative
13 embodiments there can be more than three or less than
14 three pools.

15 Distribution module 102 then transfers less than all
16 of the call records from pools 128 to queues 130.
17 Interfaced with pools 128 are queues 130a, 130b, 130c,
18 and 130d. A queue is a set of rules for selecting call
19 records from pools having the necessary and sufficient
20 information describing the exact method of transferring
21 call records to dialing devices 108 and any call records
22 assigned to but not yet transferred to dialing devices
23 108 for dialing devices 108 to call. Distribution module
24 102 attaches each queue 130 to a particular dialing
25 device 108 and monitors each dialing device. As
26 necessary, distribution module 102 transfers call records
27 from pools 128 in accordance with the configuration of
28 queues 130 which includes selection rules, time of day,
29 time of week, number of calls completed, and number of
30 call records sent. Queues 130 then transfer the call
31 records to their assigned dialing devices 108. For

1 instance, distribution module 102 transfers call records
2 according to the configuration of queues 130a and 130b to
3 dialing device 108a of call center 104a and according to
4 the configuration of queues 130c and 130d to dialing
5 device 108n of call center 104n.

6 In addition, each queue 130 is associated with a
7 single campaign for the dialing device to which it is
8 assigned. A campaign is an outbound job calling on
9 dialing device 108 that can receive additional call
10 records for calling while the outbound calling job is
11 active. Normally, a campaign on dialing device 108
12 continues to run until manually stopped or when it runs
13 out of call records to dial.

14 Pools 128 can satisfy transfer requests for call
15 records for one or more than one queue 130. For example,
16 pool 128a transfers call records to queue 130a, pool 128b
17 transfers call records to queues 130b and 130c, and pool
18 128c transfers call records to queue 130d. In addition,
19 distribution module 102 can change the queues which
20 request call records from pools 128 throughout the day
21 and in the middle of outbound calling campaigns. For
22 instance, if dialing device 108n located in call center
23 104n calls all the call records in pool 128c, then
24 distribution module 102 can request that pools 128a and
25 128b transfer call records to queue 130d.

26 Distribution module 102 transfers the call records
27 to pools 128, transfers less than all of the call records
28 from pools 128 to queues 130, and transfers queues 130 to
29 dialing devices 108 before dialing devices 108 begin
30 their daily calling routines. At the beginning of the
31 day, distribution module 102 transfers enough call

1 records from pools 128 to queues 130 to allow for dialing
2 devices 108 to place calls for fifteen, thirty, sixty
3 minutes, or an appropriate amount of time to place calls.
4 Distribution module 102 monitors the calls placed by
5 dialing devices 108 as well as the number of call records
6 remaining to be called to determine how busy dialing
7 devices 108 are and when and how many additional call
8 records to transfer from pools 128 to queues 130. The
9 monitoring of queues 130 and the transferring of
10 additional call records from pools 128 to queues 130
11 allows for real-time movement of call records from
12 distribution module 102 to dialing devices 108 throughout
13 the day. For instance, as soon as dialing device 108a is
14 about to finish calling the call records in the campaign
15 assigned to queue 130a, distribution module 102 transfers
16 additional call records from pool 128a to queue 130a so
17 that dialing device 108a maintains a steady and level
18 flow of work.

19 Dialing devices 108 also track the call attempt
20 results of every call placed by dialing devices 108. The
21 call attempt results include whether or not a call
22 resulted in a right party contact, a wrong party contact,
23 no answer, or an answering machine. For example, the
24 objective of a call record for Joe Smith is to talk with
25 Joe Smith. If agent 110 speaks with Joe Smith, that is a
26 right party contact and a successful call attempt result.
27 If Joe's babysitter answers the phone and Joe is not
28 home, that is a wrong party contact and an unsuccessful
29 call attempt result. If no one answers the phone or an
30 answering machine answers the phone, that is an
31 unsuccessful call attempt result since the desired party

1 was not contacted. Therefore throughout the day,
2 distribution module 102 queries dialing devices 108 for
3 call attempt results and uploads the call attempts
4 results. If a call attempt result is unsuccessful, then
5 distribution module 102 updates the call record in pools
6 128 so that a dialing device 108 may call the call record
7 again at a later time in the day.

8 An advantage to system 100 is that distribution
9 module 102 controls the transfer of the call records
10 which results in a level work flow for dialing devices
11 108. To enable better work flow control, queues 130
12 include selection rules that determine how distribution
13 module 102 transfers call records from pools 128 to
14 queues 130. The selection rules allow for the
15 optimization of the transfer of call records from pools
16 128 to queues 130 and include priority rules, percentage
17 rules, quotas, queuing theory rules, or any other
18 appropriate rules for optimizing the transfer of call
19 records from pools 128 to queues 130. The selection
20 rules can be modified on an as needed basis.

21 Priority rules result in distribution module 102
22 transferring call records from pools 128 to queues 130
23 based upon an assigned priority for each pool 128. For
24 example, queue 130a receives call records from pools 128a
25 and 128b with pool 128a having priority over pool 128b.
26 Queue 130b receives call records from pools 128a and 128b
27 with pool 128b having priority over pool 128a. Assume
28 that pool 128a arrives at 8:00AM while pool 128b arrives
29 at 9:00AM. Initially, both queues 130a and 130b receive
30 call records from pool 128a. At 9:00AM when pool 128b
31 arrives, queue 130a continues to receive call records

1 from pool 128a while queue 130b receives call records
2 from pool 128b.

3 Percentage rules result in distribution module 102
4 simultaneously transferring call records from pools 128
5 to queues 130. For example, queue 130c has a percentage
6 configuration with pools 128b and 128c and queue 130d has
7 a percentage configuration with pools 128b and 128c. In
8 this configuration, queue 130c and 130d receive call
9 records simultaneously from pools 128b and 128c. With
10 pool 128b arriving at 8:00AM and pool 128c arriving at
11 9:00AM, at 8:00AM both queues 130c and 130d receive call
12 records from pool 128b. At 9:00AM, queues 130c and 130d
13 alternatively receive call records from pools 128b and
14 128c. The percentages are variable for instance so that
15 queue 130c receives 80% of its call records from pool
16 128b and 20% of its call records from pool 128c while
17 queue 130d receives 60% of its call records from pool
18 128b and 40% of its call records from pool 128c.

19 The selection rules can also incorporate the
20 execution of an optimization module which will determine
21 the optimal mix of call records from each of the
22 available pools 128 based on the optimization constraints
23 and the number of call records needed at the current
24 time.

25 The selection rules can also incorporate pool quotas
26 which are limits set on each pool controlling a maximum
27 activity level such as number of records transferred,
28 number of successful call attempts, and other appropriate
29 indicators of call record activity. When distribution
30 module 102 transfers call records to pools 128,
31 distribution module 102 can also set quotas on how many

1 call records dialing devices 108 will call from pools
2 128. In the percentage rule example above, distribution
3 module 102 can place a quota on pool 128b. When dialing
4 devices 108 satisfy the quota for pool 128b, queues 130c
5 and 130d no longer receive call records from pool 128b
6 and only receive call records from pool 128c.

7 The selection rules can also be a combination of the
8 percentage rules and the priority rules. For example,
9 queue 130b receives call records from all three pools
10 128a, 128b, and 128c. Queue 130b receives call records
11 from pool 128b until dialing device 108a calls all the
12 call records in pool 128b. At that time, queue 130b then
13 alternately receives call records from pools 128a and
14 128c. As with the percentage rules above, queue 130b can
15 receive call records from pools 128a and 128c in any
16 percentage breakdown. Therefore, pool 128b has priority
17 over pools 128a and 128c while pools 128a and 128c
18 transfer call records using percentage rules.

19 In addition, these selection rules allow for skills-
20 based routing between pools 128. For example,
21 distribution module 102 allows pool 128a to initially
22 transfer call records to queue 130a and pool 128c to
23 initially transfer call records to queue 130d. If pool
24 128c becomes depleted and has no more call records to
25 transfer to queue 130d, then pool 128a can begin
26 transferring call records to both queues 130a and 130d.
27 This allows distribution module 102 to transfer call
28 records for easy to moderate difficulty customers to the
29 best agents while the less skilled agents work the more
30 difficult customers. And once the easy to moderate
31 difficulty customers call records are depleted, the best

1 agents can begin working the more difficult customer call
2 records.

3 In addition, distribution module 102 may also route
4 call records to dialing devices 108 and agents 110 based
5 on the performance of pools 128. Routing the call
6 records based on the performance of pools 128 allows
7 distribution module 102 to make modifications so that
8 pools 128 having a higher priority are not under-
9 performing. Goal module 103, associated with
10 distribution module 102 and pools 128, monitors the
11 performance of pools 128. To monitor the performance of
12 pools 128, either a user of system 100 or goal module 103
13 defines a performance metric for each pool 128. Once the
14 performance metric is defined, goal module 103 applies
15 the performance metric to pools 128. The performance
16 metric is what goal module 103 uses to measure the
17 performance of pools 128. For example, the performance
18 metric for pool 128a may be the number of right party
19 contacts while the performance metric for pool 128b is
20 the number of accounts attempted and the performance
21 metric for pool 128c is the number of call records
22 attempted. Each pool 128 may have a different
23 performance metric or pools 128 may have the same
24 performance metric. In addition, each of the pools 128
25 may have more than one performance metric. For instance,
26 pool 128a may have both a performance metric for the
27 number of right party contacts and for the number of
28 total accounts attempted.

29 Once goal module 103 has determined a performance
30 metric for each pool 128, goal module 103 defines a goal
31 for each pool 128. The goal can be either an absolute

1 goal or a goal set relative to all the other pools 128.
2 An absolute goal is a goal tied solely to the performance
3 of the particular pool 128 while a relative goal is tied
4 to the performance of all pools 128. In addition, the
5 goal is related to the selected performance metric. For
6 instance, pool 128a having a performance metric of number
7 of right party contacts may have a goal of fifty right
8 party contacts while pool 128c having a performance
9 metric of number of call records attempted has a goal of
10 one hundred call records attempted.

11 If a pool 128 has more than one performance metric,
12 then the pool 128 will have a goal for each performance
13 metric. For example, if pool 128a has a performance
14 metric for number of right party contacts and for total
15 number of accounts attempted, pool 128a may have a goal
16 of 80 right party contacts and 200 accounts attempted.
17 In addition, a pool 128 may also have a combination of
18 goals where there pool 128 only needs to satisfy one of
19 the goals. For instance, pool 128b may have a goal of 75
20 right party contacts or 200 accounts attempted and as
21 long as pool 128b has at least 75 right party contacts or
22 200 accounts attempted, pool 128b is considered to be
23 satisfying its goal and experiencing satisfactory
24 performance.

25 The goals may also be end of day goals, mid-day
26 goals, and rate based goals. End of day goals are goals
27 calculated based on the performance of a pool 128 at the
28 end of the day and include such goals as total number of
29 call records attempted and number of right party
30 contacts. Mid-day goals are similar to end of day goals
31 but are calculated based on the time of day. For

1 example, pool 128a may have a mid-day goal of twenty-five
2 right party contacts by noon. Rate based goals are
3 calculated as a rate of the total calls. For instance,
4 if pool 128a has a performance metric of right party
5 contact rate, a rate based goal may be 15% of all the
6 call records from pool 128a should result in a right
7 party contact.

8 Similar to the selection rules, goal module 103
9 defines or constrains levels of effort for each queue
10 130. The levels of effort detail the percentage of call
11 records that transfer from a particular pool 128 to a
12 particular queue 130. The levels of effort are stored in
13 an effort map associated with goal module 103. Table 1
14 shows an example effort map for system 100. An
15 examination of the effort map shown in Table 1 reveals
16 that queue 1 (queue 130a) has a level of effort of 100%
17 to pool 1 (pool 128a) meaning queue 130a receives all of
18 its call records from pool 128a. Queue 2 (queue 130b)
19 has a level of effort of 100% to pool 2 (pool 128b)
20 meaning queue 130b receives 100% of its call records from
21 pool 128b. Queue 3 (queue 130c) has a level of effort of
22 100% to pool 2 (pool 128b) meaning queue 130c receives
23 100% of its call records from pool 128b. Queue 4 (queue
24 130d) has a level of effort of 100% to pool 3 (pool 128c)
25 meaning that queue 130d receives 100% of its call records
26 from pool 128c. Therefore, 100% of the call records in
27 pool 128a transfer to queue 130a, the call records in
28 pool 128b transfer equally to queues 130b and 130c, and
29 100% of the call records in pool 128c transfer to queue
30 130d.

Table 1: Example Effort Map			
	Pool 1	Pool 2	Pool 3
Queue 1	100%	0%	0%
Queue 2	0%	100%	0%
Queue 3	0%	100%	0%
Queue 4	0%	0%	100%

1
2 As pools 128 begin to transfer call records to
3 queues 130 and agents 110 access the call records, goal
4 module 103 calculates a goal status for each pool 128.
5 The goal status can be defined as either the absolute
6 difference between the actual metric and the goal or the
7 percentage that a pool 128 is either ahead or behind its
8 goal. For instance, if each pool 128 has a goal of fifty
9 right party contacts and pool 128a has forty-five right
10 party contacts, pool 128b has forty-eight right party
11 contracts, and pool 128c has sixty right party contacts,
12 then pool 128a has a goal status of -10%, pool 128b has a
13 goal status of -4%, and pool 128c has a goal status of
14 +20% for percentage based goals. Pool 128a has a goal
15 status of -5, pool 128b has a goal status of -2 and pool
16 128c has a goal status of +10 for absolute difference
17 based goals.

18 Goal module 103 uses the goal status for each pool
19 128 to determine a goal state for each pool 128. Pools
20 128 will have a goal state for each goal. An example
21 definition of goals states would include the designation
22 of ahead of goal, at goal, or behind goal. Goal module
23 103 or a user of system of 100 determines what thresholds
24 define each of the available goal states. For example,
25 if the goal states have been defined as ahead of goal, at

1 goal, or behind goal, then a goal status of +10% and
2 above may be ahead of goal, a goal status between +10%
3 and -5% may be at goal, and a goal status of -5% and
4 below may be behind goal. Given these threshold
5 percentages and the goal status for pools 128, pool 128a
6 has a goal state of behind goal (-10%), pool 128b has a
7 goal state of at goal (-4%), and pool 128c has a goal
8 state of ahead of goal (+20%). Any pool 128 that has a
9 goal state of behind goal is said to be an under-
10 performing pool and therefore experience unsatisfactory
11 performance.

12 Similar to the pool quotas described above, goal
13 module 103 also identifies and defines a final goal for
14 each pool 128. A user of system 100 may also define the
15 final goals for each of the pools 128. When a pool 128
16 satisfies its final goal, that pool 128 is no longer
17 active and all the queues 130 that were receiving call
18 records from that pool 128 now receive call records from
19 the other pools 128 that have not satisfied their final
20 goals. For instance, pool 128a - 128c each have a final
21 goal of eighty right party contacts. At 3:00PM, pool
22 128a achieves eighty right party contacts. Because pool
23 128a has achieved its final goal, it becomes inactive and
24 the call records from pool 128a are no longer transferred
25 to queue 130a. To prevent queue 130a and agents 110 who
26 access call records from queue 130a from becoming
27 inactive, goal module 103 modifies which queues 130 pools
28 128b and 128c transfer call records to by allowing pools
29 128b and 128c to transfer call records to queue 130a.
30 Since pools 128b and 128c have not reached their final
31 goals, they are still active and queues 130 and agents

1 110 who were receiving call records from pool 128a now
2 receive call records from pools 128b and 128c.

3 Before distribution module 102 begins to transfer
4 queues 130 containing the call records to dialing devices
5 108, goal module 103 prioritizes pools 128 relative to
6 each other. Certain pools 128 may contain call records
7 that are of a higher priority than other pools 128. For
8 example, pool 128a may contain call records for customers
9 who have previously purchased products, pool 128b may
10 contain call records for customers who have never
11 purchased products, and pool 128c may contain call
12 records for customers who are delinquent in paying for
13 products previously purchased. Since a company's highest
14 priority may be to collect the money it is owed, goal
15 module 103 rates pool 128c with the highest priority
16 while pool 128a has the second highest priority since it
17 contains call records for customers with whom there is a
18 previous relationship. Pool 128b has the lowest priority
19 since it contains call records for potential customers.
20 The prioritization of pools 128 enables goal module 103
21 to adjust the workload of agents 110 so that pools 128
22 having the highest priority achieve and maintain their
23 goals throughout the day.

24 Goal module 103 modifies the distribution of call
25 records using the goals of pools 128 by modifying which
26 queues 130 pools 128 transfer call records to based on
27 the performance and prioritization of pools 128. Goal
28 module 103 modifies which queues 130 pools 128 transfer
29 call records to by adjusting or transferring the levels
30 of effort between pools 128 and queues 130. For example,
31 pool 128a is of a higher priority than pool 128c and pool

1 128a is behind goal. Using the effort map shown in Table
2 1, queue 130a receives 100% of its call records from pool
3 128a and queue 130d receives 100% of its call records
4 from pool 128c. Since pool 128a is of a higher priority,
5 goal module 103 transfers level of effort from pool 128c
6 to pool 128a so that queue 130d receives 50% of its call
7 records from pool 128c and 50% of its call records from
8 pool 128a while queue 130a still receives 100% of its
9 call records from pool 128a. The example effort map
10 shown in Table 2 illustrates which queues 130 pools 128
11 supply call records to after goal module 103 modifies the
12 distribution of call records. Transferring some of the
13 level of effort from pool 128c to pool 128a allows agents
14 110 who work queue 130d to work call records from pool
15 128a and thereby increase the number of agents 110
16 accessing call records from pool 128a so that pool 128a
17 may satisfy its goal.

18

Table 2: Example Effort Map			
	Pool 1	Pool 2	Pool 3
Queue 1	100%	0%	0%
Queue 2	0%	100%	0%
Queue 3	0%	100%	0%
Queue 4	50%	0%	50%

19

20 To aid in the distribution of call records based on
21 the performance of pools 128, goal module 103 employs one
22 or more goal strategies. The goal strategies allow for
23 the optimization of the transfer of call records from
24 pools 128 to queues 130 and help to determine how goal
25 module 103 transfers the levels of effort between pools

1 128 and queues 130. There are different goal strategies
2 that goal module 103 may implement when distributing the
3 call records based on the performance of pools 128. Goal
4 module 103 may automatically select the goal strategy
5 based upon the call records or a user of system of 100
6 may select an appropriate goal strategy.

7 One goal strategy is a meet-goals strategy. With
8 the meet-goals strategy, goal module 103 transfers levels
9 of effort to pools 128 that are not meeting their goals
10 (a goal state of behind goal) and therefore are
11 experiencing unsatisfactory performance. For example, if
12 pool 128a is behind goal and pool 128b is ahead of goal,
13 goal module 103 transfers levels of effort from pool 128b
14 to pool 128a so that queues 130b and 130c also receive
15 call records from pool 128a. A number of right party
16 contacts performance metric is a performance metric that
17 might be managed with the meet-goals goal strategy.

18 Another goal strategy is an exceed-goals strategy.
19 With the exceed-goals strategy, goal module 103 transfers
20 levels of effort away from pools 128 that are not meeting
21 their goals (a goal state of behind goal) and therefore
22 have unsatisfactory performance. For instance, if pool
23 128b is behind goal and pool 128c is at goal, goal module
24 103 transfers levels of effort from pool 128b to pool
25 128c so that queues 130b and 130c begin to receive call
26 records from pool 128c. A right party contact rate
27 performance metric is a performance metric that might be
28 managed using the exceed-goals goal strategy.

29 To insure that lower priority pools 128 do not
30 become neglected when goal module 103 routes call records
31 based on the performance of pools 128, goal module 103

1 sets preemptive limits on how much level of effort may be
2 transferred away from pools 128. These preemptive limits
3 are stored in routing tables of which each pool 128 has
4 its own routing table stored in goal module 103. An
5 exemplary routing table for pool 128a is shown in Table
6 3. In the example routing table of Table 3, if pool 128a
7 is ahead of goal, then pool 128a is willing to forego 75%
8 of its total level of effort to pools 128 that are at a
9 higher priority that need additional levels of effort.
10 Pool 128a is willing to forego 50% of its total level of
11 effort to pools 128 that are at the same priority that
12 need effort if pool 128a is ahead of goal. Pool 128a is
13 willing to give up 25% of its total level of effort to
14 pools 128 that are of lower priority if needed if pool
15 128a is ahead of goal. The percentages are then set at
16 40%, 25% and 15% if pool 128a is currently at goal. If
17 pool 128a is behind goal, pool 128a will only give up 25%
18 of its level of effort and only to a pool 128 of higher
19 priority. Each pool 128 has its own routing table and
20 the percentages may vary depending on the number of
21 pools, the number of call records, or any other
22 appropriate factors.

23

Table 3: Example Routing Table			
	Ahead	At	Behind
Higher Priority	75%	40%	25%
Same Priority	50%	25%	0%
Lower Priority	25%	15%	0%

24

25 In an alternate embodiment, the goal states and one
26 or more goal strategies are inputs to and determine the

1 objective functions and the constraints for an optimized
2 solution to the routing determination problem. The goal
3 strategies control how constraints on the levels of
4 effort between pools 128 and queues 130 are relaxed or
5 tightened when a pool 128 is not satisfying the goal. A
6 goal strategy may allow for the transfer of higher levels
7 of effort to pools 128 not satisfying their goals or
8 allow for the transfer of higher levels of effort away
9 from pools 128 not satisfying the goal. The goal module
10 adjusts the level of effort constraints in accordance
11 with the goal strategies so that pools 128 having the
12 highest priority maintain or achieve the goals throughout
13 the day.

14 In case of a communication, dialing device, or call
15 center outage, system 100 employs contingency modules 132
16 for each dialing device 108. Contingency modules 132 are
17 associated with dialing devices 108. Contingency modules
18 132 secure the call records within their respective
19 dialing devices 108 in case of an outage. Before
20 distribution module 102 transfers the call records to
21 pools 128, distribution module 102 creates call record
22 accounts for dialing devices 108, locks the call record
23 accounts to dialing devices 108, creates a contingency
24 download file, and stores the contingency download file
25 in contingency modules 132. Distribution module 102
26 updates the contingency download file with call attempt
27 results which prevents dialing devices 108 from calling
28 call records already successfully called.

29 Users of system 100 control the functionality of
30 distribution module 102 and goal module 103 through a
31 user interface. The user interface is shown as online

1 interface 134 in FIGURE 1 but can be any appropriate type
2 of user interface. Online interface 134 is a graphical
3 user, platform-independent, password-protected World Wide
4 Web ("WWW") browser-based interface. Users use online
5 interface 134 to control the settings for distribution
6 module 102 including goal module 103 including
7 application of the selection rules, number of pools, and
8 number of call records to initially transfer to the
9 queues, generate reports, select goal strategies, select
10 performance metrics, select the goals for the pools,
11 define the goal states, modify the effort map and routing
12 tables, and create and modify enterprise parameters.
13 Users access online interface 134 by using browser 136 to
14 access Internet 138 to reach a specific web address.
15 Once at the specific web address, the users enter the
16 appropriate passwords to gain access to online interface
17 134.

18 Although the embodiment shown in FIGURE 1 contains
19 more than one dialing device, in alternative embodiments
20 distribution module 102 interfaces with a single dialing
21 device. A single dialing device interfacing with
22 distribution module 102 allows for variable control over
23 similar lists of call records. For instance, call
24 records may be divided into geographies such as states or
25 time zones. Calling can be stopped automatically by
26 distribution module 102 when a quota is reached for a
27 particular geography. Distribution module 102 presents
28 the similar lists of call records for different
29 geographies as different pools but the similar lists of
30 call records for different geographies would represent
31 one calling job within the single dialing device.

1 FIGURE 2 illustrates a block diagram of system 150
2 employing two distribution modules in an alternative
3 embodiment of the present invention. System 100 as shown
4 in FIGURE 2 is shown with less detail than in FIGURE 1.

5 System 150 employs two distribution modules 102 and
6 152. Distribution module 152 is associated with two call
7 centers 154 and 156. Call centers 154 and 156 each have
8 one dialing device 158. Distribution module 152 provides
9 the same functionality to call centers 154 and 156 that
10 distribution module 102 provides to call centers 104 as
11 described above in the discussion regarding FIGURE 1.

12 Distribution module 152 provides redundancy and
13 prevents distribution module 102 from being overburdened
14 by too many dialing devices. Distribution module 102
15 functions effectively with more than one dialing device
16 interfaced with it but performance and efficiency suffers
17 when too many dialing devices are attached. Therefore,
18 additional distribution module 152 allows for both it and
19 distribution module 102 to achieve optimal performance
20 and efficiency when adding additional call centers 154
21 and 156 with additional dialing devices 158.

22 In system 150, distribution modules 102 and 152 are
23 in communication with each other including communicating
24 which call records are in the pools and the call attempt
25 results. Distribution modules 102 and 152 transfer call
26 records and call attempt results between themselves just
27 as distribution module 102 transfers call records and
28 call attempt results between dialing devices 108.
29 Therefore, if dialing devices 158 are idle while dialing
30 devices 108 are overburdened, distribution module 102
31 transfers call records to distribution module 152 for

1 dialing devices 158 to call. In addition, if
2 distribution module 152 experiences an outage,
3 distribution module 102 transfers the high priority calls
4 from distribution module 152 to dialing devices 108
5 without worry of calling the same call record a second
6 time in the same day when the first call resulted in a
7 right party contact.

8 The two distribution modules 102 and 152 of system
9 150 also each include a goal module 103 and 153. Goal
10 module 153 provides the same functionality to call
11 centers 154 and 156 that goal module 103 provides to call
12 centers 104 as described above in the discussion
13 regarding FIGURE 1. Goal modules 103 and 153 are in
14 communication with each other including communicating the
15 performance of their respective pools and queues.
16 Through the use of distribution modules 102 and 152, goal
17 modules 103 and 153 can transfer levels of effort between
18 their respective pools just as goal module 103 transfers
19 levels of effort between pools 128. Therefore if high
20 priority pools 128 are not meeting their goals, then goal
21 module 153 can transfer levels of effort from
22 distribution module 152 so that the high priority pools
23 128 will achieve their goals.

24 Distribution modules 102 and 152 manage calls from a
25 common database 118 that lists call record accounts for
26 outbound contacts by dialing. In order to identify
27 related call record accounts for more effective handling
28 of the outbound campaign or campaigns, a comparison
29 engine 160 interfaces with call records database 118 to
30 analyze and tag related call record accounts. For
31 instance, comparison engine 160 relates multiple accounts

1 to a single individual by comparing predetermined factors
2 for common values, such as name, phone number, account
3 number, social security account number, or other factors.
4 Each set of related accounts is tagged with a
5 relationship tag in a predetermined call record field so
6 that a search for that tag value will locate all related
7 call record accounts. As an example, distribution module
8 102 runs contact campaigns to collect delinquent electric
9 bills and distribution module 153 runs contact campaigns
10 to collect delinquent gas bills. The combined call
11 account records are analyzed to identify delinquent gas
12 and electric bills related to the same individual and to
13 tag each of the related delinquent call record accounts
14 with a unique individual relation tag. The lock process
15 190 locks both records to prevent dialing until results
16 are returned 198.

17 Once the call record accounts in the call record
18 database are analyzed and, where appropriate, tagged, the
19 call records are transferred to pools and queues as
20 previously described to have outbound call attempts
21 performed by dialer contact devices 108. In an
22 alternative embodiment, call record accounts in the call
23 record database are analyzed in real-time and tagged just
24 before call records are selected for dialing in the
25 dialing device. When a contact attempt is successful, a
26 common account tag detector 162 associated with the
27 dialer 108, searches to determine if the call record
28 field is populated with a relationship tag. If the call
29 record field is not populated with an individual relation
30 tag, the dialer 108 handles the contact and communicates
31 with distribution module 102 or 152 as described. If the

1 call record field is populated, the dialer 108
2 communicates the unique individual relation tag to a
3 common account controller 164 of distribution module 102
4 or 152. Common account controller 164 initiates a search
5 for the unique relationship tag in the pools of
6 distribution module 102 and 152 to place the call attempt
7 result and a hold on outbound attempts for call record
8 accounts related to the specified account. For example,
9 successful contact by an operator for collection of the
10 delinquent gas bill and delinquent electric bill of an
11 individual may result in payments for each from one call.

12 Referring now to FIGURE 3, a flow diagram depicts a
13 process for distributing outbound call records. The
14 process begins at step 170 with the transfer of call
15 records from host 112, dialing devices 108, or scheduling
16 module 122 to distribution module 102. In step 172,
17 distribution module 102 organizes and arranges the call
18 records into pools 128. Based upon user inputs
19 distribution module 102 assigns queues 130 to specific
20 dialing devices in step 174.

21 In step 176, distribution module 102 checks to see
22 if the selection rules are to be applied to pools 128 and
23 queues 130. If the selection rules are not to be
24 applied, then the process continues in step 178. If
25 selection rules are to be applied, then in step 180
26 distribution module 102 determines if priority,
27 percentage, or quota rules are applied to pools 128. If
28 priority rules are applied, then in step 182 distribution
29 module 102 applies the priority rules to pools 128 and
30 queues 130 and the process continues on to step 178. If
31 percentage rules are applied, then in step 184

1 distribution module 102 applies the percentage rules to
2 pools 128 and queues 130 and the process continues in
3 step 178. If the quota rules are applied, then in step
4 186 distribution module 102 applies the quotas to pools
5 128 and queues 130 and the process continues to step 178.

6 Distribution module 102 then delivers enough call
7 records to queues 130 for dialing devices 108 to place
8 telephone calls for fifteen, thirty, sixty minutes, or an
9 appropriate amount of time to place calls in step 178.
10 In step 190, distribution module 102 locks the call
11 records assigned to dialing devices 108 and creates a
12 contingency file specific for each dialing device 108 in
13 step 192.

14 In step 194, distribution module 102 transfers
15 queues 130 containing the set number of call records to
16 dialing devices 108. Periodically, distribution module
17 102 uploads call record statistics from each queue 130 in
18 step 196. Distribution module 102 may upload the call
19 record statistics from queues 130 every few seconds,
20 every few minutes, every hour, or any other appropriate
21 interval of time. Call record statistics include such
22 information as how many call records remain to be called
23 and the rate at which dialing devices 108 are depleting
24 the call records in queues 130. In addition to uploading
25 call record statistics, in step 198 distribution module
26 102 also uploads call attempt results. Call attempt
27 results include whether a right party contact or wrong
28 party contact was made or whether an answering machine
29 was reached when dialing devices 108 place a telephone
30 call.

1 In step 202 distribution module 102 updates the
2 contingency file with the call attempt results specific
3 for dialing devices 108. In step 204, distribution
4 module 102 uses the call record statistics gathered in
5 step 196 to analyze the number of call records remaining
6 to be called and the depletion rate of the call records
7 within queues 130. Based upon the call attempt results,
8 distribution module 102 re-presents to pools 128 call
9 records where the first attempt to make a right party
10 contact was unsuccessful so that the call record can be
11 called later in the day in step 206. In addition, the
12 call record can be made unavailable for the remainder of
13 the day if a right party contact was made.

14 Based upon the call record statistics, distribution
15 module 102 determines in step 208 if more call records
16 need to be sent from pools 128 to queues 130. If more
17 call records are needed, then in step 210 distribution
18 module 102 sends additional call records from pools 128
19 to queues 130 and the process repeats beginning with step
20 176 until manually stopped. But if distribution module
21 102 determines that no additional call records need to be
22 sent from pools 128 to queues 130 in step 208, then the
23 process repeats beginning with step 196 until manually
24 stopped or until there are no call records remaining to
25 be called.

26 FIGURES 4a and 4b illustrate a flow diagram for the
27 population of pools 128 and queues 130 with call records.
28 The call records in FIGURES 4a and 4b include scheduling
29 information provided by scheduling module 122.

30 Referring to FIGURE 4a, in step 222 the call records
31 pass through scheduling module 122 from either dialing

1 devices 108 or host 112. Scheduling module 122 adds call
2 scheduling information to each call record as it passes
3 through it. In step 224, scheduling module 122 transfers
4 the call records containing call scheduling information
5 to call record database 118 within distribution module
6 102. Distribution module 102 then arranges the call
7 records into pools 128 in step 226. When distribution
8 module 102 places the call records into pools 128,
9 distribution module 102 examines each call record to
10 determine how to extract the scheduling information,
11 account number and telephone number from the call record.
12 In addition, distribution module 102 flags any call
13 records where the scheduling information or telephone
14 number is stripped from the end of the call record before
15 placing it in the pools 128.

16 In step 228, distribution module 102 splits the call
17 records into a plurality of pools 128. Each pool 128
18 holds the call record as a data string and the call
19 records are in the same format within pools 128. In
20 addition, distribution module 102 arranges the call
21 records within pools 128 so that each call record is
22 selectable by its account number.

23 The call scheduling information provided by
24 scheduling module 122 allows for an optimum order to call
25 the call records. Using the call scheduling information,
26 distribution module 102 creates hourly indices for pools
27 128 in step 230. The hourly indices allow for pools 128
28 to take advantage of the fact that the call order and
29 call priority of each call record changes based upon the
30 time of day. For example, a call record might be
31 scheduled to be the first call at 8:00AM and if not

1 successfully called at 8:00AM then rescheduled to be the
2 tenth call made at 6:00PM. There is a hourly index
3 created for each hour of the calling day and the hourly
4 indices are shown in step 232. Distribution module 102
5 creates an index for each hour for each pool 128.

6 In addition to the hourly indices, distribution
7 module 102 also creates an immediate index and an
8 overflow index. The immediate index contains call
9 records that are always the first to be called at the
10 beginning of every hourly index. The call records within
11 the immediate index allow real time call record insertion
12 based upon previous call attempts and are often call
13 records that resulted in no contact when called the first
14 time. Call records contained in the overflow index are
15 call records which were not scheduled to be called or
16 call records that do not have call scheduling
17 information.

18 Once the call records are arranged into pools 128
19 and the hourly indices are created, the process of
20 transferring the call records from pools 128 to queues
21 130 begins. In step 234, distribution module 102 selects
22 the call records contained in the immediate index.
23 Distribution module 102 also removes any call records
24 that are unavailable to be called and marks the call
25 records as unavailable in step 236. In step 238,
26 distribution module 102 determines if it is ready to
27 transfer the call records from pools 128 to queues 130
28 for this hour and if there are a sufficient number of
29 call records to be transferred from the immediate index
30 to allow for fifteen, thirty, sixty minutes, or an
31 appropriate amount of time for calling. If there are

1 sufficient call records, then in step 239, distribution
2 module 102 transfers the call records from the pool
3 immediate index to queues 130.

4 If there are not enough call records in the
5 immediate index, then in step 240 distribution module 102
6 selects call records from the appropriate hourly index.
7 These additional call records in combination with call
8 records from the immediate index will allow for fifteen,
9 thirty, sixty minutes, or an appropriate amount of time
10 for calling. In step 242, distribution module 102
11 removes any call records unavailable to be called and
12 marks the call records as unavailable. Distribution
13 module 102 then transfers the call records from the
14 immediate index and the appropriate hourly index to
15 queues 130 in step 239.

16 In step 244, distribution module 102 transfers
17 queues 130 containing the call records to dialing devices
18 108. After queues 130 are transferred to dialing devices
19 108, in step 246 dialing devices 108 begin calling the
20 call records.

21 Referring to FIGURE 4b, as dialing devices 108 call
22 the call records, distribution module 102 monitors
23 dialing devices 108 and queues 130 for when it is time to
24 send the next hourly index of call records from pools 128
25 to queues 130 in step 248. In determining when to send
26 the next hourly index, distribution module 102 cannot
27 start morning hour queues before the actual hour of the
28 hourly index and must stop evening hour queues before the
29 hourly index hour expires. For instance, the pool
30 morning hourly index for 10:00AM cannot be sent from
31 pools 128 to queues 130 before 10:00AM and the evening

1 hourly index for 7:00PM must stop calling at 8:00PM.
2 This is in part to due to telemarketing regulations that
3 regulate the times of day that telemarketing calls may be
4 placed.

5 If in step 248 it is time for the next hourly index,
6 then in step 250 distribution module 102 selects the next
7 hourly index to be called and begins the process of
8 transferring the call records from the appropriate hourly
9 index to queues 130. The process of selecting the next
10 hourly index repeats steps 234 through 244 by first
11 taking call records from the immediate index and adding
12 call records from the appropriate hourly index as
13 explained above.

14 If in step 248 it is not time for the next hour,
15 then distribution module 102 determines queue depth and
16 the time to go in step 252. Queue depth is the amount of
17 call records remaining to be called in the queue while
18 time to go is the amount of time remaining in the hour
19 for the hourly index. In step 254 if the depth is not
20 too low and the time to go is not too short so that there
21 are a sufficient amount of call records to call for the
22 remaining time left in the hour, then additional call
23 records are not needed in queue 130. So in step 256, the
24 call attempt results regarding a right or wrong party
25 contact are uploaded from dialing devices 108 and sent
26 back to distribution module 102 in step 258. The process
27 then returns to step 234 of Figure 4a to begin the next
28 record search.

29 If in step 254 distribution module 102 determines
30 that the depth is too low or the time to go is too short,
31 then in step 260 distribution module 102 calculates the

1 number of call records needed to finish out the hour for
2 the hourly index. In step 262, distribution module 102
3 selects additional call records to call by repeating
4 steps 234 through 239 above and transferring the call
5 records from the pools 128 to queues 130 in step 264 so
6 that dialing devices 108 do not sit idle but finish out
7 the hour placing telephone calls. The process then
8 returns to step 234 of Figure 4a to begin the next record
9 search.

10 FIGURE 5 depicts a flow diagram of a method for
11 goals based routing of contact records employing a meet-
12 goals goal strategy. The method begins at step 300 when
13 goal module 103 selects a performance metric for each
14 pool 128, determines a goal for each pool 128 and
15 prioritizes pools 128 relative to each other. At step
16 302 goals module 103 calculates a goal status for each
17 pool 128 using the goal and performance metric for each
18 pool 128. After goal module 103 has calculated a goal
19 status, goal module 103 cycles through pools 128 in
20 descending priority order at step 304.

21 At step 306, goal module 103 selects a target pool
22 based on its priority. Goal module 103 selects a target
23 pool by first selecting the pool 128 having the highest
24 priority. Goal module 103 then determines the goal state
25 from the goal status for the target pool to determine if
26 the target pool is behind goal at step 308. If the
27 target pool is not behind goal, then at step 310 goal
28 module 103 checks to see if there are additional pools
29 128 to cycle through. If there are not additional pools
30 128 to cycle through, then the process ends. But if
31 there are additional pools 128 to cycle through at step

1 310, then the process returns to step 306 where goal
2 module 103 selects the pool 128 having the next highest
3 priority to determine if that target pool is behind goal.
4 If that target pool is not behind goal, then the process
5 repeats until either goal module 103 locates a target
6 pool that is behind goal at step 308 or the process ends
7 because no target pools are behind goal.

8 If at step 308, the target pool is behind goal, then
9 goal module 103 cycles through donor pools from lowest to
10 highest priority at step 312. The donor pools include all
11 the other pools 128 except the target pool that was
12 selected at step 308. At step 314, goal module 103
13 selects a donor pool 128 having the lowest priority out
14 of all the donor pools. The goal module 103 then
15 determines if the selected donor pool is active and able
16 to donate levels of effort to the target pool at step
17 316. A pool 128 is active when it is still transferring
18 contact records to queues 130 and hasn't satisfied its
19 final goal or quota. Goal module 103 examines the
20 routing table for the selected donor pool to determine if
21 the donor pool is able to donate levels of effort to the
22 target pool. Since each pool 128 has its own routing
23 table, goal module 103 must examine the routing table to
24 determine if the donor pool is able to donate any levels
25 of effort. Generally, if the selected donor pool is
26 ahead of goal or at goal, it is able to donate a
27 percentage of level of effort to the target pool
28 regardless of the respective pool priorities. If the
29 donor pool is behind goal but the target pool is of a
30 higher priority, then generally the donor pool is
31 available to donate some percentage of level of effort.

1 If the donor pool is behind goal and the target pool is
2 of the same priority or lower priority, then typically
3 the donor pool is not able to donate any level of effort
4 to the target pool.

5 If at step 316 the donor pool is both active and
6 able to donate a percentage of level of effort to the
7 target pool, then at step 318 goal module 103 transfers a
8 percentage of the level of effort from the donor pool to
9 the target pool. Goal module 103 transfers the level of
10 effort from the donor pool to the target pool by
11 modifying the effort map in accordance with the limits
12 specified in the routing table for the donor pool. To
13 donate the level of effort from the donor pool to the
14 target pool, goal module 103 examines the routing table
15 for the donor pool to determine how much level of effort
16 may be donated from the donor pool to the target pool.
17 For instance using the example routing table in Table 3,
18 if the target pool is of a higher priority than the donor
19 pool and the donor pool is above its goal, then goal
20 module 103 transfers 75% of the level of effort for the
21 donor pool to the target pool. Therefore, if pool 128a
22 is the donor pool and pool 128c is the target pool, goal
23 module 103 transfers 75% of the level of effort for pool
24 128a to pool 128c thereby allowing queue 130a to receive
25 25% of its contact records from pool 128a and 75% of its
26 contact records from pool 128c instead of queue 130a
27 receiving 100% of its contact records from pool 128a.
28 Pool 128c now supplies contact records to queues 130a and
29 130d instead of just queue 130d which allows additional
30 agents 110 to access contact records from pool 128c and
31 thereby meet the goal for pool 128c. Goal module 103

1 then modifies the effort map to reflect this change in
2 the levels of effort between pools 128.

3 After goal module 103 transfers the level of effort,
4 at step 320 goal module 103 determines if there are
5 additional donor pools to cycle through. If there are
6 additional donor pools to cycle through, then the process
7 returns to step 314 where goal module 103 selects the
8 donor pool having the second lowest priority and the
9 process repeats until there are no more donor pools to
10 cycle through at step 320. If at step 316 the donor pool
11 is either not active or not able to donate a percentage
12 of level of effort to the target pool, the process
13 proceeds to step 320 where goal module 103 determines if
14 there are additional donor pools to cycle through as
15 described above.

16 When at step 320 goal module 103 determines that
17 there are no more donor pools to cycle through, the
18 process proceeds to step 310 where goal module 103
19 determines if there are any additional pools 128 to cycle
20 through. If there are no more pools 128, then the
21 process ends. If there are additional pools, then the
22 process returns to step 306 where goal module 103 selects
23 the next pool 128 based on its priority to determine if
24 it is behind its goal.

25 The method of FIGURE 5 repeats until goal module 103
26 has checked every pool 128 from highest to lowest
27 priority to see if pools 128 are behind goal. Therefore,
28 the pools 128 having the highest priority are addressed
29 first by goal module 103 ensuring that pools 128 having
30 the highest priority shall achieve and/or maintain their
31 goals by transferring levels of effort away from pools

1 128 having a lower priority to pools 128 having a higher
2 priority.

3 FIGURE 6 illustrates a flow diagram of a method for
4 goals based routing of contact records employing an
5 exceed-goals goal strategy. The method begins at step
6 330 when goal module 103 selects a performance metric for
7 each pool 128, determines a goal for each pool 128 and
8 prioritizes pools 128 relative to each other. At step
9 332, goal module 103 calculates a goal status for each
10 pool 128 using the goal and performance metric for each
11 pool 128. After goal module 103 has calculated a goal
12 status, goal module 103 cycles through pools 128 in an
13 ascending priority order at step 334.

14 At step 336, goal module 103 selects a target pool
15 based on its priority. Goal module 103 selects a target
16 pool by first selecting the pool 128 having the lowest
17 priority. Goal module 103 then determines the goal state
18 using the goal status for target pool to determine if
19 target pool is behind goal at step 338. If target pool
20 is not behind goal, then at step 340 goal module 103
21 checks to see if there are additional pools 128 to cycle
22 through. If there are no additional pools 128 to cycle
23 through, the process ends. But if there are additional
24 pools 128 to cycle through at step 340, then the process
25 returns to step 336 where goal module 103 selects the
26 pool 128 having the next lowest priority to determine if
27 that target pool is behind goal. If that target pool is
28 not behind goal, then the process repeats until either
29 goal module 103 locates a target pool that is behind goal
30 at step 338 or the process ends because no target pools
31 are behind goal.

1 If at step 338, the target pool is behind goal, then
2 goal module 103 cycles through recipient pools from
3 highest to lowest priority at step 342. The recipient
4 pools include all the other pools 128 except the target
5 pool that was selected at step 336. At step 344, goal
6 module 103 selects a recipient pool having the highest
7 priority out of all the recipient pools. Goal module 103
8 then determines if the selected recipient pool is active
9 and ahead of its goal at step 346. A pool 128 is active
10 when it is still transferring contact records to queues
11 130 and has not satisfied its final goal or quota.

12 If at step 346 the recipient pool is both active and
13 ahead of its goal, then at step 348 goal module 103
14 transfers a percentage of the level of effort from the
15 target pool to the recipient pool. After goal module 103
16 transfers the level of effort, at step 340 goal module
17 103 determines if there are additional pools 128 to cycle
18 through. If there are no additional pools 128 to cycle
19 through at step 340, then the process ends. But if at
20 step 340 there are additional pools 128 to cycle through,
21 then the process returns to step 336 where goal module
22 103 selects the target pool having the next lowest
23 priority.

24 If at step 346 the recipient pool is either not
25 active or not ahead of goal, the process proceeds to step
26 350 where goal module 103 determines if there are
27 additional recipient pools to cycle through. If there
28 are additional recipient pools to cycle through at step
29 350, then the process returns to step 344 where goal
30 module 103 selects a recipient pool having the next

1 highest priority and the process repeats as described
2 above.

3 If at step 350 there are no more recipient pools to
4 cycle through, the process continues to step 352. The
5 method only proceeds to step 352 after goal module 103
6 has examined all of the recipient pools to determine if
7 the recipient pools are active and ahead of goal. At
8 step 352, goal module 103 cycles through recipient pools
9 from highest to lowest priority and at step 354 goal
10 module 103 selects the recipient pool having the highest
11 priority. At step 356, goal module 103 determines if the
12 selected recipient pool is active and at goal. If the
13 selected recipient pool is active and at goal, then at
14 step 358 goal module 103 transfers a percentage of the
15 level of effort from the target pool to the selected
16 recipient pool. The process then continues on to step
17 340 where goal module 103 determines if there are
18 additional pools 128 to cycle through and the process
19 either ends or returns to step 336.

20 If at step 356 goal module 103 determines that the
21 selected recipient pool is either not active or not at
22 goal, then at step 360 goal module 103 determines if
23 there are additional recipient pools to cycle through.
24 If there are not additional recipient pools to cycle
25 through, then the process continues to step 340 where
26 goal module 103 determines if there are additional pools
27 128 to cycle through as described above. If there are
28 additional recipient pools to cycle through at step 360,
29 then the process returns to step 354 where goal module
30 103 selects the next recipient pool having the next

1 highest priority and the process repeats as described
2 above.

3 The method of FIGURE 6 repeats until goal module 103
4 has checked every pool 128 from lowest to highest
5 priority to see if pools 128 are behind goal. Therefore,
6 the pools 128 having the lowest priority are examined
7 first to determine if they are able to donate a
8 percentage of level of effort to pools 128 having higher
9 priority so that the pools 128 having the highest
10 priority exceed their goals.

11 In an alternate embodiment, the present invention
12 applies to the different types of contacts records and
13 devices listed above and manages other types of customer
14 contact requests such as inbound calls, email, Internet
15 chat, online requests for live chat in addition to
16 outbound call records.

17 Referring now to FIGURE 7, a block diagram depicts a
18 distribution module 102 adapted to perform real time
19 contact information updates. Plural contact devices 108
20 dial outbound telephone numbers provided from pools 128
21 and contact record database 118 as previously described.
22 The results of contact attempts are returned from contact
23 devices 108 to distribution module 102 for storage in
24 contact record database 118. For instance, in a
25 collections call campaign, call attempts to a telephone
26 number associated with a contact record may include a
27 successful contact, whether or not the contacted
28 individual agreed to pay, or an unsuccessful contact,
29 such as a busy tone, an answering machine, a no answer,
30 an inoperative number or a wrong number. A contact
31 update engine 400 analyzes contact record database 118 to

1 identify contact records having an unsuccessful contact
2 attempt. Contact update engine 400 selects from the
3 identified contact records according to update factors
4 402 those contact records to update and communicates the
5 selected contact records to update resource interface
6 404. Update resource interface 404 communicates through
7 a network 408 with update resources to obtain updated
8 contact information and provides the update to update
9 validation engine 406 for validation of the update before
10 transfer for use through contact record database 118.

11 Contact update engine 400 applies user selectable
12 update factors 402 to identify and select contact records
13 for updating. In one embodiment, contact update engine
14 400 is a rules-based engine that identifies contact
15 records as "no contacts" based on a first set of rules
16 and selects identified contacts for updating based on a
17 second set of rules. For instance, contact records
18 having a contact result code of an inoperative telephone
19 number is determined a no contact, and a contact record
20 having greater than a predetermined account balance
21 delinquency is selected for updating. Other examples of
22 update factors to identify contact records as no contacts
23 include an answered call that indicates a wrong number, a
24 predetermined number of unanswered calls, or previous
25 skip trace history associated with the contact record.
26 Other examples of update factors to select contact
27 records for updating include the length of delinquency,
28 the number of delinquent accounts for an individual, and
29 the source of previous skip traces.

30 In one embodiment, contact update engine 400 is a
31 model that predicts the outcome of call attempts with

1 skip traced contact information, such as a probability of
2 a cure reached on a delinquent account from updated
3 contact information. For instance, a logistic regression
4 model with two or more outcomes, such as cure, contact
5 and no cure, provides an estimate for the value of an
6 update for a contact record when compared with the cost
7 of obtaining an update. If the probable recovery for a
8 contact record is less than the cost of obtaining the
9 update, then selection of the contact record for an
10 update becomes uneconomical. The predictive variables to
11 model the expected result of a contact record update
12 include account information, credit report information,
13 call history, payment history and other relationship
14 information.

15 Update resource interface 404 communicates with
16 update resources, such as directory assistance, with XML
17 formatted information sent via secure HTTP messages.
18 Information sent to the update resources includes the
19 individual associated with the contact record, the
20 available contact address and phone information, and
21 other relevant information, such as drivers license and
22 social security numbers, as well as an optional skip-
23 trace data source and query scenario. Update resource
24 interface 404 selectively communicates to desired update
25 resources so that update cost and source information is
26 tracked. In this manner, for instance, high value
27 accounts may be sequentially updated from different
28 update resources. Update resource interface 404 receives
29 contact record updates with new contact information, such
30 as new telephone numbers, and a confidence score that
31 indicates the confidence of the new contact information,

1 and provides the updated information to update validation
2 engine 406. Update validation engine 406 validates the
3 updated contact information by comparing it with existing
4 information to confirm a lack of duplicate contact
5 information compared with existing contact information.
6 Validated updates are then forwarded to contact record
7 database 118 for inclusion as contact records inserted in
8 pools 128. These updates may be applied to external
9 databases as well.

10 Referring now to FIGURE 8, a flow diagram depicts a
11 process for real time updates to contact records of a
12 contact campaign. The process begins at step 412 with
13 the dialing of an account to a no contact result, such as
14 a message that the number dialed is inoperative. The
15 process continues to step 414 for the identification of
16 no contact accounts for updating by application of the
17 update factors to the contact record and contact attempt
18 history. At step 416, a contact information update
19 request is communicated to an update resource to obtain
20 updated contact information. At step 418, if the update
21 request provides valid contact information, then the
22 process returns to step 412 to perform contact attempts
23 with the contact information. At step 418, if the update
24 request provides contact information that is not valid,
25 such as contact information that is duplicative of
26 existing contact information, the process continues to
27 step 420 for a locking of the account to preclude
28 additional contact attempts.

29 Updates to contact information are customizable and
30 may automatically cumulate previous update information to
31 perform subsequent updates by incorporating updated

1 information into subsequent update requests. For
2 instance, business rules customize the decision of
3 whether and how to perform an update. One example of
4 such customization is the user selection of a minimum
5 confidence score that must be associated with an update
6 before using the update. The confidence score is
7 calculated along with the skip trace to predict the
8 accuracy of the update. Another example of customization
9 is the performance of update requests based on the
10 results of previous updates. For instance, if a call
11 attempt's result code indicates a bad phone number, then
12 custom logic requests a skip trace query using the
13 consumer file and a high confidence threshold. The
14 system denotes that the contact record has had one skip
15 trace attempt. If data is returned, another contact
16 attempt is performed using the updated information. If
17 that attempt returns a bad phone number code as well,
18 custom logic requests another skip trace attempt using
19 the consumer file, but using a metroplex match and
20 allowing a lower confidence threshold to accept a less
21 specific match. The system denotes the contact record's
22 number of skip trace attempts increases to two. If data
23 is returned, another contact attempt is performed using
24 the updated information. If that attempt returns a bad
25 phone number code, custom logic requests a final query,
26 this time attempting a lookup against directory
27 assistance and accepting a lower confidence score. Again,
28 the system denotes that the contact record has now had
29 three skip attempts. Lock the account if no info is
30 returned, or if subsequent calls return bad phone number
31 indicators. Real-time updates made with user-definable

1 rules improves the success rate through multiple skip
2 trace attempts on a single account within a desired time
3 frame, such as the hour of a campaign identified as the
4 optimal time to contact an individual.

5 Although the present invention has been described in
6 detail, it should be understood that various changes,
7 substitution, and alterations can be made hereto without
8 parting from the spirit and scope of the invention as
9 defined by the appended claims.